

# SEQUENCE LISTING

<110> Vivien W. Wong, et al.

<120> MODIFIED CILIARY NEUROTROPHIC FACTOR, METHOD OF  
MAKING AND METHODS OF USE THEREOF

<130> REG 142-C

<140> 09/577,468

<141> 2000-05-24

<150> 09/454,380

<151> 1999-12-03

<150> 09/373,834

<151> 1999-08-13

<160> 23

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 200

<212> PRT

<213> Homo sapiens

<400> 1

```

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
 1          5          10          15
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
          20          25          30
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
          35          40          45
Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
          50          55          60
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
          65          70          75          80
Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
          85          90          95
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
          100          105          110
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
          115          120          125
Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
          130          135          140
Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
          145          150          155          160
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
          165          170          175
Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
          180          185          190
Tyr Ile Ala Asn Asn Lys Lys Met
          195          200

```

<210> 2

<211> 200

<212> PRT

<213> Rattus norvegicus

<400> 2

Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu  
1 5 10 15  
Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
20 25 30  
Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
35 40 45  
Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
50 55 60  
Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
65 70 75 80  
Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val  
85 90 95  
His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
100 105 110  
Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val  
115 120 125  
Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala  
130 135 140  
Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
145 150 155 160  
Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
165 170 175  
Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His  
180 185 190  
Tyr Gly Ala Lys Asp Lys Gln Met  
195 200

<210> 3

<211> 199

<212> PRT

<213> Oryctolagus cuniculus

<400> 3

Met Ala Phe Met Glu His Ser Ala Leu Thr Pro His Arg Arg Glu Leu  
1 5 10 15  
Cys Ser Arg Thr Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
20 25 30  
Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
35 40 45  
Asn Leu Asp Ser Val Asp Gly Val Pro Met Ala Ser Thr Asp Gln Trp  
50 55 60  
Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
65 70 75 80  
Arg Thr Phe His Ile Met Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
85 90 95  
His Phe Thr Pro Ala Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
100 105 110  
Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Val  
115 120 125  
Leu Leu Glu Cys Asn Ile Pro Pro Lys Asp Ala Asp Gly Thr Pro Val  
130 135 140  
Ile Gly Gly Asp Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys Val  
145 150 155 160  
Leu Gln Glu Leu Ser His Trp Thr Val Arg Ser Ile His Asp Leu Arg  
165 170 175  
Val Ile Ser Cys His Gln Thr Gly Ile Pro Ala His Gly Ser His Tyr  
180 185 190  
Ile Ala Asn Asp Lys Glu Met  
195

<210> 4  
 <211> 198  
 <212> PRT  
 <213> Mus musculus

<400> 4

Met Ala Phe Ala Glu Gln Ser Pro Leu Thr Leu His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Ser Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Thr Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Ala  
 115 120 125  
 Leu Leu Glu Gln Lys Val Pro Glu Lys Glu Ala Asp Gly Met Pro Val  
 130 135 140  
 Thr Ile Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Val Ile Ser Ser His His Met Gly Ile Ser Ala His Glu Ser His  
 180 185 190  
 Tyr Gly Ala Lys Gln Met  
 195

<210> 5  
 <211> 195  
 <212> PRT  
 <213> Gallus gallus

<400> 5

Met Ala Ala Ala Asp Thr Pro Ser Ala Thr Leu Arg His His Asp Leu  
 1 5 10 15  
 Cys Ser Arg Gly Ile Arg Leu Ala Arg Lys Met Arg Ser Asp Val Thr  
 20 25 30  
 Asp Leu Leu Asp Ile Tyr Val Glu Arg Gln Gly Leu Asp Ala Ser Ile  
 35 40 45  
 Ser Val Ala Ala Val Asp Gly Val Pro Thr Ala Ala Val Glu Arg Trp  
 50 55 60  
 Ala Glu Gln Thr Gly Thr Gln Arg Leu Leu Asp Asn Leu Ala Ala Tyr  
 65 70 75 80  
 Arg Ala Phe Arg Thr Leu Leu Ala Gln Met Leu Glu Glu Gln Arg Glu  
 85 90 95  
 Leu Leu Gly Asp Thr Asp Ala Glu Leu Gly Pro Ala Leu Ala Ala Met  
 100 105 110  
 Leu Leu Gln Val Ser Ala Phe Val Tyr His Leu Glu Glu Leu Leu Glu  
 115 120 125  
 Leu Glu Ser Arg Gly Ala Pro Ala Glu Glu Gly Ser Glu Pro Pro Ala  
 130 135 140  
 Pro Pro Arg Leu Ser Leu Phe Glu Gln Lys Leu Arg Gly Leu Arg Val  
 145 150 155 160  
 Leu Arg Glu Leu Ala Gln Trp Ala Val Arg Ser Val Arg Asp Leu Arg  
 165 170 175

Gln Leu Ser Lys His Gly Pro Gly Ser Gly Ala Ala Leu Gly Leu Pro  
 180 185 190  
 Glu Ser Gln  
 195

<210> 6  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 6

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val  
 115 120 125  
 Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala  
 130 135 140  
 Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His  
 180 185 190  
 Tyr Gly Ala Lys Asp Lys Gln Met  
 195 200

<210> 7  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 7

Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val

85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 8  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 8  
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Val Ile Ser Ser His Gln Met Gly Ile Ser Ala Leu Glu Ser His  
 180 185 190  
 Tyr Glu Ala Lys Asp Lys Gln Met  
 195 200

<210> 9  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 9

Met Ala Phe Ala Glu Gln Thr Pro Leu Thr Leu His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val  
 115 120 125  
 Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala  
 130 135 140  
 Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 10  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 10  
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Met Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Val  
 115 120 125  
 Leu Leu Glu Gln Lys Ile Pro Glu Asn Glu Ala Asp Gly Met Pro Ala  
 130 135 140  
 Thr Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met

195

200

<210> 11  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

&lt;400&gt; 11

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 12  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

&lt;400&gt; 12

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110

Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 13  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 13  
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp  
 50 55 60  
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 14  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 14  
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr



20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Gln Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 15  
 <211> 200  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Modified CNTF

<400> 15  
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys  
 145 150 155 160  
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu  
 165 170 175  
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His  
 180 185 190  
 Tyr Ile Ala Asn Asn Lys Lys Met  
 195 200

<210> 16

<211> 184  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Ax-15 protein

<400> 16

Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu Ala  
 1 5 10 15  
 Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr Ala  
 20 25 30  
 Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile Asn  
 35 40 45  
 Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp Ser  
 50 55 60  
 Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr Arg  
 65 70 75 80  
 Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val His  
 85 90 95  
 Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu Leu  
 100 105 110  
 Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile Leu  
 115 120 125  
 Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile Asn  
 130 135 140  
 Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys Val  
 145 150 155 160  
 Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu Arg  
 165 170 175  
 Phe Ile Ser Ser His Gln Thr Gly  
 180

<210> 17  
 <211> 185  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Methionine+ Ax-15 protein

<400> 17

Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu  
 1 5 10 15  
 Ala Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr  
 20 25 30  
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile  
 35 40 45  
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Arg Trp  
 50 55 60  
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr  
 65 70 75 80  
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val  
 85 90 95  
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu  
 100 105 110  
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile  
 115 120 125  
 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile  
 130 135 140  
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys

B9  
cont.

<400> 18

21

<400> 19

48

<400> 20

69

<400> 21

21

<400> 22

27

<210> 23  
<211> 47  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Primer

<400> 23

gcgtcggccg cggaccacgc tcattacca gtctgtgaga agaaatg

47